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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WANG, CHANG YU

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,472	CHARETTE, MARC F.	
	Examiner	Art Unit	
	Chang-Yu Wang	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-32,34-38,43,44,46,48 and 51-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-32,34-38,43,44,46,48 and 51-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

RESPONSE TO AMENDMENT

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/26/08 has been entered.

Status of Application/Amendments/claims

2. Applicant's amendment filed 6/26/08 is acknowledged. Claims 1-26, 33, 39-42, 45, 47, and 49-50 are cancelled. Claims 27, 46, and 48 are amended. Claims 27-32, 34-38, 43, 44, 46, 48 and 51-53 are pending in this application and under examination in this office action.

3. Any objection or rejection of record, which is not expressly repeated in this action has been overcome by Applicant's response.

4. Applicant's arguments filed on 6/26/08 have been fully considered but they are not deemed to be persuasive for the reasons set forth below.

Claim Rejections/Objections Withdrawn

5. The rejection of claims 27-32, 34-38, 43, 44, 46, 48 and 51-53 under 35 U.S.C. 103(a) as being unpatentable over Rueger et al. (US 6723698, issued on April 20, 2004,

priority September 25, 1997) in view of Bachevalier et al. (Hippocampus. 1996. 6: 553-560), Contestabile et al. (J. Neurosci. Res. 1990. 26: 483-7), Simonsen et al. (Scand J. Work Environ. Health. 1994. 20: 1-12) and Gillette-Guyonnet et al. (Am. J. Clin. Nutr. 2000. 71:637S-642S) and an evidentiary reference Holownia et al. (Mater Med. Pol. 1994 Jan-Mar; 26: 25-7) is withdrawn in response to Applicant's amendment to the claims and evidence of common ownership.

Claim Rejections/Objections Maintained

In view of the amendment filed on 6/26/08, the following rejections are maintained.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 27-32, 34-38, 43, 44, 46, 48 and 51-53 stand rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for up-regulating the expression of N-CAM and L1 in NG108-15 cells and increasing dendritic arbors of 7-14 DIV cultured hippocampal neurons with OP-1 (BMP-7) protein of SEQ ID NO:2, does not reasonably provide enablement for general methods for reducing spatial or declarative memory dysfunction caused by damaged hippocampal tissues and caused by permanent or transient global ischemia comprising determining the existence of spatial or declarative memory dysfunction and administering a structurally ill-defined

morphogen merely comprising a conserved C-terminal seven-cysteine skeleton that is at least about 60% identical and 70% homologous to residues 330-431 of human OP-1 (SEQ ID NO:2) or fragments thereof. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The rejection is maintained for the reasons made of record.

On p. 7-8 of the response, Applicant argues that amended claims are enabled because they recite reducing spatial and declarative memory dysfunction caused by damaged hippocampal tissue. Applicant argues that amended claims are fully enabled based on the disclosure in the instant specification (p.49, lines 3-16 and p. 48, lines 10-18 and p.55, line 9 to p. 61, line 7) because US6506729 and Morrison et al. (Science 1997. 278: 412-419) and Example 9 of ibid have shown synaptic regeneration in vitro and nerve gap repair by the claimed morphogen and that dendrite growth and density correlates with memory retention. Applicant's arguments have been fully considered but they are not persuasive.

In contrast, the instant claims are not enabled because the specification fails to demonstrate that the claimed morphogens or OP-1 with limited homology can reduce spatial or declarative memory dysfunction. Although the specification provides several prophetic examples and states that cell loss in the hippocampus affects spatial memory and learning, and also affects general memory function such as declarative memory (p. 48-49), the instant specification fails to demonstrate that the claimed morphogens can really reduce such memory dysfunction.

As previously made of record, it is known in the art that memory dysfunction or deficit is a complex process and its cause or process is not clear; i.e. it is not only due to neuronal damage or neuronal loss. It is also known in the art that the process of spatial or declarative memory dysfunction is also complex. Based on the prior art and the specification, the instant claims are only enabling for neurite outgrowth or neuronal protection against neuronal damage caused by ischemia or caused by other mechanisms such as malnutrition, anorexia or memory deficit caused by hippocampal neuronal damage or loss. However, the instant claims are not limited to neurite outgrowth or neuronal protection against neuronal damage caused by different mechanisms. The limitation of "spatial or declarative memory dysfunction" is only a general term and is not clear what is encompassed. In addition, an in vitro bioassay in neurite outgrowth is not equivalent to memory recovery and reducing memory dysfunction in vivo because memory dysfunction or recovery involves more than neurite outgrowth or neuronal survival. The specification fails to show that enhancing neurite outgrowth and neuronal survival by the claimed morphogens in vitro can reduce spatial or declarative memory dysfunction in vivo. Thus, it is unpredictable whether the claimed method can truly reduce spatial or declarative memory dysfunction since neither the prior art nor the specification provides any evidence to show that morphogens are predictably effective in such broad and undefined and uncharacterized memory dysfunction. Note that

"The 'predictability or lack thereof' in the art refers to the ability of one skilled in the art to extrapolate the disclosed or known results to the claimed invention. If one skilled in the art can readily anticipate the effect of a change within the subject matter to which the claimed invention pertains, then there is predictability in the art. On the other hand, if one skilled in the art cannot readily anticipate the effect of a change within the subject matter to which that claimed invention pertains, then there is lack of

predictability in the art. Accordingly, what is known in the art provides evidence as to the question of predictability. In particular, the court in In re Marzocchi, 439 F.2d 220, 223-24, 169 USPQ 367, 369-70 (CCPA 1971)" See MPEP § 2164.03

Accordingly, the rejection of claims 27-32, 34-38, 43, 44, 46, 48 and 51-53 under 35 U.S.C. §112, first paragraph, because the specification does not enable the invention commensurate in scope with the claims is maintained.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 34 and 35 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. The rejection is maintained for the reasons made of record.

On p. 12 of the response, Applicant argues that description of the mature OP-1 can be found p.8, lines 6-9, p. 12, lines 11-12 of the instant specification. In addition, Applicant argues that the recitation of the mature OP-1 peptide comprising residues 293-431 of SEQ ID NO:2 is supported by US5266683 (col.16, lines 6-9; col.7, lines 9-10), which is incorporated by the reference in the instant specification on p. 17, lines 22-23. Applicant's arguments have been fully considered but they are not persuasive.

In contrast, although US5266683 is incorporated by the reference in the instant specification, the '683 patent discloses several mature forms of OP-1 and also states that one mature form of OP-1 comprises aa 293-431 of SEQ ID NO:1. The instant specification fails to describe what specific part of the '693 patent was used in the instant specification. Particularly, the instant specification fails to specify which specific mature form of OP-1 can be used in the claimed method.

Claims 34-35 are directed to a method of using a mature form of OP-1 comprising aa 293-431 of SEQ ID NO:2 to reduce spatial and declarative memory dysfunction in a mammal. However, the specification fails to disclose such a method to use this particularly defined mature form of OP-1 comprising aa 293-431 of SEQ ID NO:2. Thus, the limitation of "aa 293-431 of SEQ ID NO:2" in the claimed method as recited in the claims 34-35 was not supported by the instant specification. Accordingly, in the absence of sufficient recitation of residues 293-431 of SEQ ID NO:2 in the claimed method in the claims 34-35, the specification does not provide adequate written description and thus the rejection is maintained.

New Grounds of Rejection

Obviousness-Type Non-Statutory Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 27-32, 34-38, 43, and 44 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6407060. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claims 27-32, 34-38, 43, and 44 encompass a method for reducing spatial or declarative memory dysfunction caused by damaged hippocampal tissue by a morphogen comprising a conserved C-terminal seven-cysteine skeleton at least 60% identical or 70% homologous to aa 330-431 of human OP-1 (SEQ ID NO:2) wherein the damaged hippocampal tissue is caused by permanant or transient global ischemia or neurotoxin or malnutrition, glucose metabolism disorder or anorexia. Claims 1-30 of US6497060 (the '060 patent) encompass a method for enhancing recovery of CNS function by a morphogen comprising a conserved C-terminal seven-cysteine skeleton at least 70% homologous to aa 330-431 of human OP-1 in a mammal suffering from a CNS injury caused by ischemia or trauma.

The claims of the instant application are unpatentable over the claims of the '060 patent because the neuronal damage in the instant claims is caused by ischemia, which is identical to the claims of the '060 patent. In addition, the morphogen of the instant claims is substantially identical to the morphogen of the '060 patent. Both the instant and the '060 patent encompass the same material and the same patient population, which means that patients suffering from ischemia would also suffer from memory dysfunction. Thus, if the instant claims can reduce the claimed memory dysfunction, the claims of the '060 patent would also be able to reduce memory dysfunction. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patient population and the material used in the claimed method in this instant case are overlapping with the claims of the '060 patent. Thus, the instant application and the '060 patent claim a non-distinct invention overlapping in scope.

Conclusion

9. NO CLAIM IS ALLOWED.

10. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Papers relating to this application may be submitted to Technology Center 1600, Group 1649 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chang-Yu Wang whose telephone number is (571) 272-4521. The examiner can normally be reached on Monday-Thursday from 8:30 AM to 6:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker, can be reached at (571) 272-0911.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CYW/
Chang-Yu Wang, Ph.D.
September 15, 2008

/Christine J Saoud/
Primary Examiner, Art Unit 1647